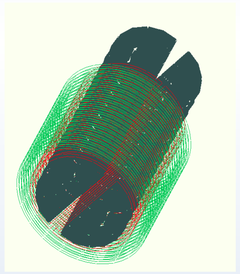
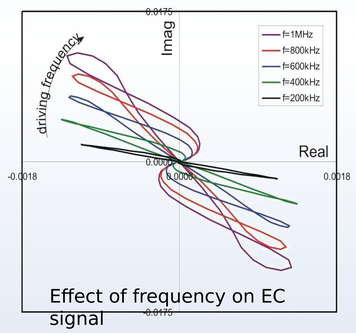
Model-Based Methods for Reducing Costs Associated with POD Studies

MAT TP-5 Nondestructive Evaluation For Asset Life Extension and Integrity

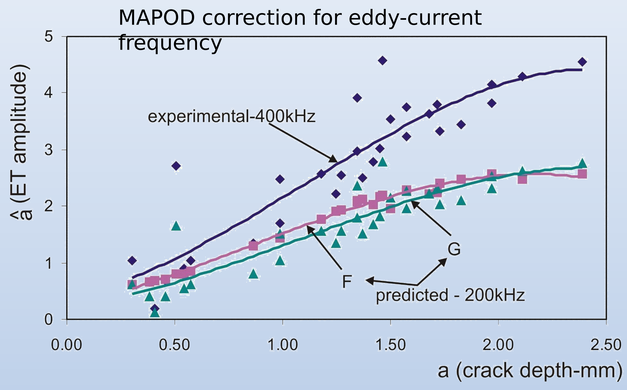
Reliable NDI is essential to the structural integrity and availability of military aircraft including C130 variants

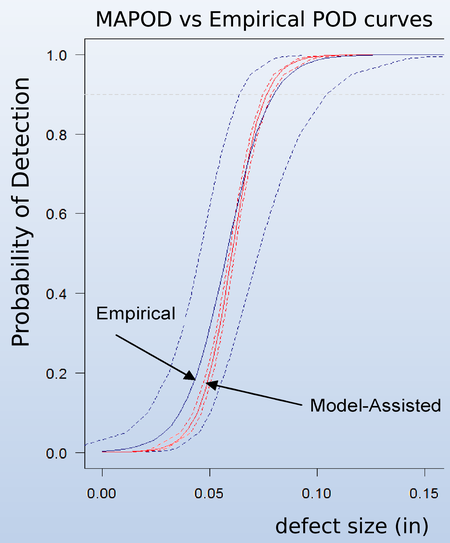


FE model of eddy-current NDI probe



Effect of frequency on EC signal





Objectives: To develop modeling and analysis tools to enable cost-effective assessment of the field reliability and probability of detection (POD) for nondestructive inspections (NDI).

Payoff: Enhanced safety and availability of defense platforms through improved reliability of NDI processes. The development of practical model-assisted probability of detection (MAPOD) tools will enable POD assessments for a wider range of NDI procedures and supports NDI reliability initiatives including the USAF NDI Improvement Program. The MAPOD tools have been used to validate the POD for automated ultrasonic inspections of RAAF F-111 wings, and provided data to support safety-by-inspection programs on Canadian maritime patrol and transport aircraft.

Participants: DSTO NRC AFRL

Future Activities: New assignments will develop the MAPOD tools for maritime structural integrity management and structural health monitoring systems.

This award is made for world-leading collaborative research to develop and evaluate new model-assisted methods to quantify the probability of detection of defects using nondestructive inspections. The new methods significantly extend capabilities for objective measurement of nondestructive inspection reliability, which is critical to assuring the safety and operational availability of defense platforms. This development represents a substantial scientific achievement which will reduce sustainment costs and improve safety.